

SAFETY STRATEGIC GOAL

“Enhance public health and safety by working toward the elimination of transportation-related deaths and injuries”

OUTCOMES

1. Reduction in transportation-related deaths
2. Reduction in transportation-related injuries

STRATEGIES

Improving safety throughout the transportation network is the premier goal of the Department of Transportation and we are making significant strides, mode by mode, despite increasing exposure to safety risk. The story of improvements in transportation safety can be told as a story of technology reducing the opportunity for human error. For example, with airline simulator training, pilots gain ‘real’ experience flying through and out of wind shear in a risk-free environment. Below we present discussions of our central safety strategies mode by mode.

HIGHWAY SAFETY

Signed on August 10, 2005, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) provided the groundwork for innovative activities to support highway traffic safety. Our ability to work with states to develop and implement data-driven, workable, and self-sustaining highway safety programs is key to the overall success in achieving a reduction in highway safety fatalities.

To accomplish these reductions, DOT provides grants to states and local communities, supports research, demonstrations and countermeasure programs designed to prevent motor vehicle crashes and reduce their associated economic costs. While these programs have saved tens of thousands of lives, projections for highway fatalities and injuries show us that much more needs to be done in behavioral and vehicle safety to improve safety on our roads.

In the behavioral area, we will focus on the delivery of data-driven programs and countermeasures aimed at: increasing occupant protection use; reducing alcohol-related fatalities; reducing motorcycle fatalities; promoting effective speed management; prolonging older driver mobility as long as medically practicable; promoting parental roles in effective driver education curricula; and maintaining the integrity of driver licensing processes. As these behavioral programs mature, we are faced with the challenge of reaching audiences that are more resistant to safety messages. Our future behavioral efforts will therefore focus on harder-to-reach and under-served populations.

With respect to vehicle safety, the introduction of technology into motor vehicles is occurring at an ever-increasing rate, providing consumers with more choices in safety, ease-of-use, and entertainment. In addition to its traditional vehicle research, rulemaking, enforcement, and safety defect investigations, DOT will assess the lifesaving benefits of emerging technologies as they enter the vehicle fleet. In FY 2008, DOT will promulgate a final rule to include New Car Assessment Program (NCAP) ratings on the sales stickers of new vehicles, as mandated by SAFETEA-LU, providing consumers with more information on the safety of new vehicles at the point of sale.

TRUCK SAFETY

About 12 percent of all motor vehicle fatalities in the U.S. involve crashes with large trucks – nearly 5,000 of the 42,800 highway fatalities involved commercial vehicles in 2005. It is particularly challenging to bring down the fatality rate for these motor carriers, because truck miles traveled are increasing faster than vehicle miles.

DOT is committed to reducing the number of crashes and to saving more lives through programs and partnerships with other government agencies, industry and the public. Aggressive enforcement is our primary strategy for improving truck safety levels. We target high risk carriers through field activities such as compliance reviews, safety audits, and roadside inspections. One of the most important strategies is increased focus on the role of drivers in preventing crashes. The Large Truck Causation Study and other analyses show that influencing driver behavior is the biggest factor in crash prevention. While our traditional focus has been on improving the safety of motor carrier companies, this research shows that there are gains to be had from an increased focus on drivers. Therefore this is one of the primary areas where DOT seeks future improvements in truck safety. We will also conduct educational programs by partnering with states and other agencies to heighten public awareness of best highway safety practices for commercial motor vehicles and passenger vehicles.

TRANSIT SAFETY

Public transportation is the safest mode of surface transportation. According to the National Safety Council, riding the bus is 47 times safer than traveling by car, and traveling by train is 23 times safer than traveling by car. In 2004, there were 168 transit-caused fatalities. The challenge is to reduce even further transit fatalities and injuries as the total number of people using transit increases.

Our central strategy to accomplish this goal is to integrate safety and security throughout every aspect of public transit. This broad strategy includes: planning, design, operation and maintenance; effective and responsive training for transit personnel; technical assistance and oversight for transit operators; safety research and technology development; supporting effective drug and alcohol programs; and working with states to implement state safety oversight of rail fixed route systems.

AVIATION SAFETY

In the U.S., fatal airline accidents are such rare events that it is a challenge to express meaningfully the level of safety. Officially, DOT reports fatal accidents per 100,000 departures - at .022, which largely consists of cargo accidents or cases where a ground employee is struck by an aircraft on the ramp or an employee drives a tug into an aircraft. Concerning events that most people have in mind when they think fatal airline accidents, the rate for passenger airlines is on the order of 0.007 per 100,000 departures. With respect to passenger jets, the number is about half that level. Or you must fly every day for 43,000 years to get to an even chance of being killed in an airline accident – or an accident with fatalities occurs about every 15 to 16 million flights.

Aviation safety is the result of continual improvements in technology that reduce the opportunity for human error or that enable us to recover after a serious error. For example, pressurized aircraft in the 1940s started flying above most of the weather and terrain, at least en route. That change alone significantly reduced Controlled Flight into Terrain (CFIT) accidents and loss of control in flight. Radar and the jet engine also improved safety. More recent developments, such as the Traffic Collision Avoidance System (TCAS) and the Terrain Awareness Warning Systems (TAWS), are examples of technology improving safety levels. Today, we are on the threshold of reaching the next level in commercial aviation safety through safety information. Our central strategy for achieving a stronger future for aviation safety will entail sharing safety data.

RAILROAD SAFETY

Every day, trains in America travel more than 1.5 million miles to transport passengers to their destinations and deliver goods to the marketplace. America's rail system is a vast network of over 233,000 miles of track that serve as arteries for commerce and connections for local communities. To support America's economic growth, increased demands are being placed on our rails – in the form of more trains on our tracks than ever before. Amid a strong economy and increased demand for rail services, in 2005, the number of overall train accidents and derailments declined. Data comparing 2005 with 2004 show that overall train accidents decreased 6.0 percent, including a 6.6 percent reduction in the number of derailments. In addition, the total number of highway-rail grade crossing fatalities declined 3.5 percent and the grade crossing collision rate reached an all-time record low of 3.84 per million train-miles.

Preliminary data also reveal that human-factors – the leading cause of all train accidents – decreased 10.1 percent in 2005. Trespassing remains the largest single cause of rail-related fatalities accounting for 53.0 percent of the total that same year.

Our strategy for improving rail safety is to continue to implement the *National Rail Safety Action Plan* that was launched in 2005 to target the most frequent and highest-risk causes of train accidents and accelerate research into new technologies that can improve rail safety levels. Many elements of the plan have been implemented, including pilot projects to test technology to identify small cracks in rail joints, monitor track switch positions in nonsignaled or dark territory, and provide timely hazardous materials information to emergency responders.

Federal inspectors will study data to identify potential problem areas that need more attention before an accident occurs, and DOT will launch two new automated track inspection vehicles, tripling the number of track miles inspected annually. In addition, a proposed federal rule to reduce the most common human errors that lead to train accidents will be issued. For economic progress to continue, safety must remain the core principle that guides operations on our Nation's rail system.

PIPELINE SAFETY

The 2.3 million miles of natural gas and hazardous liquid pipelines carry nearly two-thirds of the energy consumed by our Nation and, as a mode of transportation, remain the safest and most efficient way to transport the enormous quantities of natural gas and hazardous liquids Americans use each day. We are achieving impressive safety results – pipeline accidents with severe consequences to people are trending steadily downward. Although there has been an increase in the total of all reported accidents in the recent past, this data reflects normal variations in year-to-year reporting as well as damage caused by hurricanes in 2005.

To continue to improve pipeline safety levels, we are implementing a multi-phase safety strategy into daily operations based on improving pipeline performance by: managing risk; sharing responsibility; and providing effective stewardship. DOT's pipeline safety program managers are well informed and empowered to seek innovative ways to improve safety while at the same time minimizing unnecessary costs to the economy.

RESOURCES

The human resources, programs, capital assets, information technology and other resources described in DOT's Annual Performance Budgets are needed to achieve our safety outcomes and to execute the specific strategies presented below. The schedule for executing our safety strategies extends from fiscal 2006 through fiscal 2011. All strategies presented below support both safety outcomes.

RESEARCH AND TECHNOLOGY STRATEGIES

1. Sponsor and conduct research to understand and address the causal factors and risks in accidents, to anticipate future safety risks, and to determine the most effective ways of mitigating the consequences of transportation accidents and incidents in all modes.
2. Support safety rulemaking by assessing the potential safety impacts of new transportation technologies, vehicles, concepts, designs, and procedures.
3. Reduce the involvement of alcohol and drugs, including prescription and over-the-counter medications in all transportation incidents through data-driven, science-based interventions.
4. Sponsor and conduct research to reduce the hazards and resultant deaths, injuries and crashes associated with vehicle incompatibility and with rollovers.

5. Improve safety for all road users and mitigate deaths and injuries in motor vehicle crashes by conducting research on human factors and on the biomechanics of trauma.
6. Promote initiatives aimed at reducing the two leading causes of train accidents: human factors and defective track.
7. Accelerate research on rail tank-car structural integrity and on fatigue in the rail industry, a primary cause of train accidents.
8. Identify promising technologies for reducing the risk of train accidents in 'dark' or nonsignaled territory where hazardous materials are transported.
9. Conduct and sponsor research and analysis to advance innovation and technical solutions to improve truck safety information.
10. Undertake systematic safety risk assessments of new transportation technologies and procedures, to ensure that they are implemented in the safest possible way.
11. Test materials used in transit vehicles for fire/life safety and update guidelines to reflect advances.
12. Improve safety for the growing segments of the population consisting of drivers and motor vehicle occupants who are older or who have disabilities through research to develop enhanced usability features and technologies for these populations.
13. Reduce the occurrence and severity of crashes by assessing the benefits of improved motor vehicle crash avoidance and crashworthiness capabilities; upgrading standards; using consumer information to improve motor vehicle safety performance; and increasing the proper use of motor vehicle crash avoidance and protection equipment.

COMMUNICATION, EDUCATION AND TRAINING STRATEGIES

14. Increase the proper use of adult and child restraints through education, high-visibility enforcement, collaboration with motor vehicle and highway safety partners, regional demonstration programs, and strategic media usage.
15. Reduce the hazards associated with walking, biking and motorcycles through collaboration with motor vehicle and highway safety partners, education and rider training, protective attire, strategic media usage, and consumer information.
16. Implement a comprehensive approach to reducing speeding-related crashes through a combination of education, engineering and enforcement efforts.
17. Collaborate with engineering, enforcement, education and emergency services agencies and organizations to develop, promote and implement effective approaches to improve highway safety.
18. Work with Operation Lifesaver, the rail industry, State and local governments, and other transportation organizations to inform the public about rail safety.

19. Sponsor websites, seminars and meetings at which the various transportation modes can share advances in safety technology, regulation, and procedures.
20. Promote voluntary information sharing that provides information on accident causes, precursors and prevention or mitigation strategies to the people in government or industry best able to act on that information.
21. Promote safe motor carrier operations and best practices through partnerships and education.
22. Provide guidance and technical assistance to the state agencies responsible for safety oversight of rail transit systems, monitor the compliance with the requirements of the State Safety Oversight Rule for Rail Fixed Guideway Systems, and encourage a collaborative approach between the Federal and state agencies and rail transit system operators.
23. Provide guidance on transit bus safety including dissemination of model bus safety technical resource information.
24. Promote outreach and interaction within the transit industry on transit safety information through the dissemination of timely safety and security information, and the maintenance of a national safety and security clearinghouse and web site.
25. Provide transit safety and security training for transportation professionals, continuously updating the training to reflect advances in the state-of-the-art and state-of-the-practice and to meet changing training needs.
26. Reduce deaths and injuries – the most serious safety consequences of pipeline failure – by communicating information on best practices for land use; providing public education, training first responders, and promoting more effective use of technology to detect and limit the effects of pipeline releases.

DATA UTILIZATION STRATEGIES

27. Assist States in implementing a comprehensive, collaborative, and data driven approach to highway safety and encouraging the development of statewide Strategic Highway Safety Plans.⁴
28. Work closely with Tribes, States, local governments and other stakeholders to improve highway safety data systems and capabilities.
29. Develop and promote a comprehensive program that makes meaningful use of available rail data to focus inspection activities and assess enforcement techniques.
30. Evaluate the impact of new vehicle and infrastructure technologies on transit safety and security, including an ongoing analysis of data collected from incidents involving new technologies in bus and rail.

ENFORCEMENT, OVERSIGHT AND ACCOUNTABILITY STRATEGIES

⁴ See 23 U.S.C. 148

31. Assist transit grantees and states in implementing Federal regulatory requirements for drug and alcohol testing of safety sensitive employees through program audits, and technical assistance and training focused on identified deficiencies and non-compliance trends.
32. Provide data-driven, science-based oversight and supervision of state highway safety performance-based grant programs and program contract management to ensure accountability in the use of Federal highway safety resources.
33. Partner with key stakeholders to promote the use of engineering design features that reduce crashes due to roadway departure, at intersections, and involving pedestrians.
34. Conduct a comprehensive compliance enforcement program to assure that vehicles and equipment comply with Federal motor vehicle safety standards, and conduct a comprehensive defects investigation and recall program to assure that safety defects for motor vehicles and equipment are identified and corrected or kept off the road.
35. Increase compliance with Federal Motor Carrier Safety Requirements (FMCSRs) and Federal Hazardous Materials Regulations (FHMRS) through enforcement by Federal safety personnel and grants to state safety agencies.
36. Modernize and optimize DOT's operational effectiveness through continuous implementation of best practices and innovations in enforcement in all modes.
37. Protect pipelines from excavation damage – the leading cause of all serious incidents – through stronger state and national damage prevention programs, a national 811 system for notifications, new technology, and work with the Common Ground Alliance.
38. Improve the packaging and handling of hazardous materials through performance-based standards, education, enforcement, and sharing best practices.
39. Improve motor carrier driver credentialing and licensing systems by enforcing standards for commercial drivers' licenses and establishing connectivity and data sharing of commercial driver records across all states.

SAFER INFRASTRUCTURE, VEHICLES AND RESPONSE STRATEGIES

40. Reduce death and disability by improving post-crash care through enhanced emergency medical and 9-1-1 systems.
41. Promote research initiatives to reduce train accidents caused by human factors and defective track, to reduce collisions at highway rail crossings, and to reduce trespassing along railroad rights-of-way.
42. Increase infrastructure and operational improvements which enhance the ability of travelers to remain on the roadway, reduce the adverse consequences of roadway departure, improve intersection safety and protect pedestrians and bicyclists in the roadway environment.

- 43. Integrate safety and security throughout every aspect of transit including planning, design, training, operations, and maintenance.
- 44. Invest in the transit infrastructure by replacing older bus and rail vehicles with newer, safer ones and improving track and transit facility conditions.
- 45. Implement integrity management practices to identify and repair corrosion and other defects in the pipeline system before it fails, and extend integrity management to gas distribution systems where four out of every five serious pipeline incidents occur.

PERFORMANCE MEASURES

Table 1 depicts the relationship between DOT's safety outcomes and the performance measures that will show our progress in achieving them.

TABLE 1. SAFETY OUTCOMES AND PERFORMANCE MEASURES

OUTCOMES	PERFORMANCE MEASURES
1. Reduction in transportation-related deaths	- Highway fatalities per 100 million vehicle miles traveled (VMT)
2. Reduction in transportation-related injuries	- Highway fatalities involving large trucks per 100 million truck vehicle miles traveled (TVMT)
	- U.S. commercial fatal aviation accidents per 100,000 departures (3 year average)
	- Number of fatal general aviation accidents
	- Rail-related accidents and incidents per million train miles
	- Transit fatalities per 100 million passenger-miles traveled
	- Number of serious incidents for natural gas and hazardous liquid pipelines
	- Number of serious hazardous materials transportation incidents
	- Number of serious HAZMAT incidents involving commercial motor vehicles